



## **“LAB # 7”**

**COURSE:**

**SOFTWARE CONSTRUCTION AND  
DEVELOPMENT LAB**

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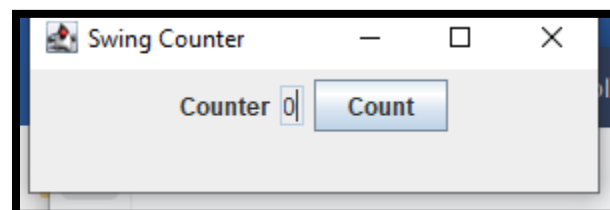
**ROLL NO:**

**2021-BSE-032**

## 1. Swing counter:

```
© Main.java    © SimpleForm.java    © SwingCounter.java x
1
2  import java.awt.*;
3  import java.awt.event.*;
4  import javax.swing.*;
5  ▶ public class SwingCounter extends JFrame {
      4 usages
6      private JTextField tfCount;
      3 usages
7      private JButton btnCount;
      2 usages
8      private int count = 0;
      1 usage
9      public SwingCounter() {
10         Container cp = getContentPane();
11         cp.setLayout(new FlowLayout());
12         cp.add(new JLabel( text: "Counter"));
```

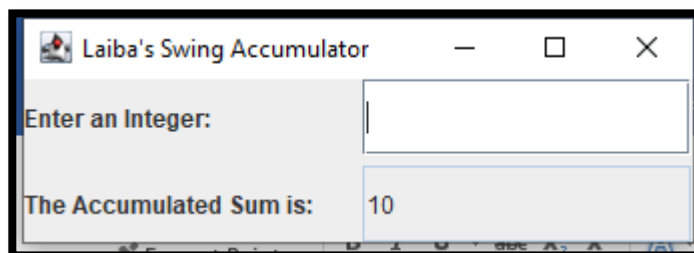
```
© Main.java    © SimpleForm.java    © SwingCounter.java x
10         Container cp = getContentPane();
11         cp.setLayout(new FlowLayout());
12         cp.add(new JLabel( text: "Counter"));
13         tfCount = new JTextField("0");
14         tfCount.setEditable(false);
15         cp.add(tfCount);
16         btnCount = new JButton( text: "Count");
17         cp.add(btnCount);
18         btnCount.addActionListener(new ActionListener() {
19             @Override
20             public void actionPerformed(ActionEvent evt) {
21                 ++count;
22                 tfCount.setText(count + "");
23             }
24         });
25         setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
26         setTitle("Swing Counter");
27         setSize( width: 300, height: 100);
28         setVisible(true);
29     }
30     ▶ public static void main(String[] args) {
31         SwingUtilities.invokeLater(new Runnable() {
32             @Override
33             public void run() {
34                 new SwingCounter();
35             }
36         });
37     }
```



## 2. Swing Accumulator:

```
© Main.java © SimpleForm.java © SwingCounter.java © SwingAccumulator.java x
1 import java.awt.*;
2 import java.awt.event.*;
3 import javax.swing.*;
4
5 public class SwingAccumulator extends JFrame {
6     private JTextField tfInput, tfOutput;
7     private int sum = 0;
8
9     public SwingAccumulator() { Container cp = getContentPane();
10         cp.setLayout(new GridLayout( rows: 2, cols: 2, hgap: 5, vgap: 5));
11
12         cp.add(new JLabel( text: "Enter an Integer: ")); tfInput = new JTextField( columns: 10); cp.add(tfInput);
13
14         cp.add(new JLabel( text: "The Accumulated Sum is: ")); tfOutput = new JTextField( columns: 10); tfOutput.setEditable(false);
15         cp.add(tfOutput);
16         tfInput.addActionListener(new ActionListener() { @Override
17             public void actionPerformed(ActionEvent evt) { int numberIn = Integer.parseInt(tfInput.getText()); sum += numberIn;
18                 tfInput.setText(""); tfOutput.setText(sum + "");
19             }
20         });
```

```
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE); setTitle("Laiba's Swing Accumulator");
        setSize( width: 350, height: 120); setVisible(true);
    }
    public static void main(String[] args) { SwingUtilities.invokeLater(new Runnable() { @Override
        public void run() {
            new SwingAccumulator();
        } });
    }
```



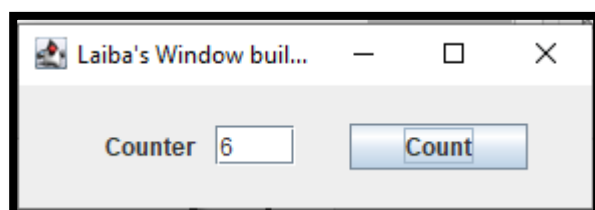
### 3. Window builder:

© Main.java × © SimpleForm.java © counter.java × © SwingCounter.java © SwingAccumulator.java

```
1  import java.awt.EventQueue; import javax.swing.JFrame; import javax.swing.JPanel;
2  import javax.swing.border.EmptyBorder;
3  import javax.swing.JLabel;
4  import javax.swing.JButton;
5  import java.awt.event.ActionListener;
6  import java.awt.event.ActionEvent; import javax.swing.JRadioButton; import javax.swing.JTextField;
7
8  public class counter extends JFrame {
9
10     7 usages
11     private JPanel contentPane; private JTextField textField; private int count =0;
12
13     /**
14      * Launch the application.
15      */
16     public static void main(String[] args) { EventQueue.invokeLater(new Runnable() {
17         public void run() {
18             try {
19                 counter frame = new counter(); frame.setVisible(true);
20             } catch (Exception e) {
21                 e.printStackTrace();
22             }
23         }
24     });
```

```

Main.java  SimpleForm.java  counter.java  SwingCounter.java  SwingAccumulator.java
public counter() {
    setTitle("Laiba's Window builder counter");
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    setBounds( x: 100, y: 100, width: 302, height: 100);
    contentPane = new JPanel();
    contentPane.setBorder(new EmptyBorder( top: 5, left: 5, bottom: 5, right: 5));
    setContentPane(contentPane);
    contentPane.setLayout(null);
    JLabel lblNewLabel = new JLabel( text: "Counter");
    lblNewLabel.setBounds( x: 43, y: 11, width: 69, height: 39);
    contentPane.add(lblNewLabel);
    textField = new JTextField();
    textField.setBounds( x: 98, y: 20, width: 40, height: 20);
    contentPane.add(textField);
    textField.setColumns(10);
    JButton btnNewButton_1 = new JButton( text: "Count");
    btnNewButton_1.addActionListener(new ActionListener() {
        public void actionPerformed(ActionEvent e) {
            ++count; textField.setText(count + "");
        }
    });
    btnNewButton_1.setBounds( x: 165, y: 19, width: 89, height: 23);
    contentPane.add(btnNewButton_1);
}
}
```



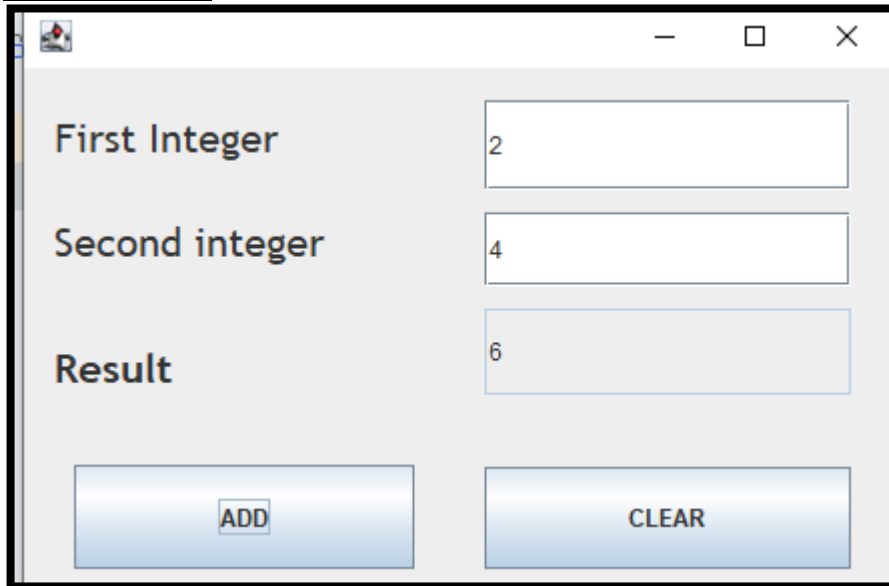
#### 4. Swi ng Add er:

© Main.java × © SimpleForm.java © SwingAdder.java ×

1 usage

```
23 public SwingAdder() {
24     setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
25     setBounds( x: 100, y: 100, width: 450, height: 300);
26     contentPane = new JPanel();
27     contentPane.setBorder(new EmptyBorder( top: 5, left: 5, bottom: 5, right: 5));
28     setContentPane(contentPane);
29     contentPane.setLayout(null);
30     JLabel lblNewLabel = new JLabel( text: "First Integer");
31     lblNewLabel.setBounds( x: 15, y: 23, width: 152, height: 37);
32     lblNewLabel.setFont(new Font( name: "Trebuchet MS", Font.PLAIN, size: 20));
33     lblNewLabel.setVerticalAlignment(SwingConstants.TOP);
34     contentPane.add(lblNewLabel);
35     JLabel lblNewLabel_1 = new JLabel( text: "Second integer");
36     lblNewLabel_1.setBounds( x: 15, y: 57, width: 152, height: 60);
37     lblNewLabel_1.setFont(new Font( name: "Trebuchet MS", Font.PLAIN, size: 20));
38     contentPane.add(lblNewLabel_1);
39     JButton btnNewButton = new JButton( text: "ADD");
40     btnNewButton.setBounds( x: 25, y: 198, width: 170, height: 52);
41     btnNewButton.addActionListener(new ActionListener() {
42         public void actionPerformed(ActionEvent e) {
43             number1=Integer.parseInt(textField.getText());
44             number2=Integer.parseInt(textField_1.getText());
45             sum=number1+number2; textField_2.setText(sum+"");
46         }
47     });
```

## Calculator:



First Integer 2

Second integer 4

Result 6

ADD CLEAR

```
© Main.java    © SimpleForm.java    © SwingAdder.java x
1  import java.awt.EventQueue;
2  import javax.swing.JFrame;
3  import javax.swing.JPanel;
4  import javax.swing.border.EmptyBorder;
5  import java.awt.GridLayout;
6  import javax.swing.JLabel;
7  import javax.swing.SwingConstants;
8  import java.awt.Font;
9  import javax.swing.JButton;
10 import java.awt.event.ActionListener;
11 import java.awt.event.ActionEvent;
12 import javax.swing.JTextField;
13
14 public class SwingAdder extends JFrame{
15     private JPanel contentPane;
16     private JTextField textField;
17     private JTextField textField_1;
18     private JTextField textField_2;
19     private int number1,number2;
20     private int sum=0,mod=0,mul=0,sub=0;
```



© Main.java

© SimpleForm.java

© SwingAdder.java x

```
21     private double div=0;
22     public static void main(String[] args) {
23         EventQueue.invokeLater(new Runnable() {
24             public void run() { try {
25                 SwingAdder frame = new SwingAdder();
26                 frame.setVisible(true);
27             }
28             catch (Exception e) {
29                 e.printStackTrace();
30             }
31         }
32     });
33 }
34 1 usage
35 public SwingAdder() {
36     setTitle("Laiba's Calculator");
37     setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
38     setBounds( x: 100, y: 100, width: 417, height: 398);
39     contentPane = new JPanel();
40     contentPane.setBorder(new EmptyBorder( top: 5, left: 5, bottom: 5, right: 5));
41     setContentPane(contentPane);
42     contentPane.setLayout(null);
43     JLabel lblNewLabel = new JLabel( text: "First Integer");
44     lblNewLabel.setBounds( x: 15, y: 23, width: 152, height: 24);
45     lblNewLabel.setFont(new Font( name: "Trebuchet MS", Font.PLAIN, size: 20));
```



© Main.java    © SimpleForm.java    © SwingAdder.java    x

```
42 JLabel lblNewLabel = new JLabel( text: "First Integer");
43 lblNewLabel.setBounds( x: 15, y: 23, width: 152, height: 24);
44 lblNewLabel.setFont(new Font( name: "Trebuchet MS", Font.PLAIN, size: 20));
45 lblNewLabel.setVerticalAlignment(SwingConstants.TOP);
46 contentPane.add(lblNewLabel);
47 JLabel lblNewLabel_1 = new JLabel( text: "Second integer");
48 lblNewLabel_1.setBounds( x: 15, y: 57, width: 152, height: 60);
49 lblNewLabel_1.setFont(new Font( name: "Trebuchet MS", Font.PLAIN, size: 20));
50 contentPane.add(lblNewLabel_1);
51
52 JButton btnNewButton = new JButton( text: "+");
53 btnNewButton.setFont(new Font( name: "Tahoma", Font.BOLD, size: 17));
54 btnNewButton.setBounds( x: 15, y: 191, width: 152, height: 37);
55 btnNewButton.addActionListener(new ActionListener() {
56     public void actionPerformed(ActionEvent e) {
57         number1=Integer.parseInt(textField.getText());
58         number2=Integer.parseInt(textField_1.getText());
59         sum=number1+number2; textField_2.setText(sum+"");
60     }
61 });
62
63 contentPane.add(btnNewButton);
64 JLabel lblNewLabel_2 = new JLabel( text: "Result");
65 lblNewLabel_2.setBounds( x: 15, y: 120, width: 152, height: 60);
66 lblNewLabel_2.setFont(new Font( name: "Trebuchet MS", Font.BOLD, size: 20));
67 contentPane.add(lblNewLabel_2);
```

© Main.java × © SimpleForm.java © SwingAdder.java ×

```
62
63     contentPane.add(btnNewButton);
64     JLabel lblNewLabel_2 = new JLabel( text: "Result");
65     lblNewLabel_2.setBounds( x: 15, y: 120, width: 152, height: 60);
66     lblNewLabel_2.setFont(new Font( name: "Trebuchet MS", Font.BOLD, size: 20));
67     contentPane.add(lblNewLabel_2);
68     textField = new JTextField();
69     textField.setBounds( x: 230, y: 16, width: 120, height: 45);
70     contentPane.add(textField); textField.setColumns(10);
71     textField_1 = new JTextField();
72     textField_1.setBounds( x: 230, y: 72, width: 120, height: 37);
73     contentPane.add(textField_1); textField_1.setColumns(10);
74     textField_2 = new JTextField();
75     textField_2.setBounds( x: 230, y: 120, width: 120, height: 45);
76     contentPane.add(textField_2);
77     textField_2.setColumns(10);
78     textField_2.setEditable(false);
79     JButton btnNewButton_1 = new JButton( text: "CLEAR");
80     btnNewButton_1.setFont(new Font( name: "Tahoma", Font.BOLD, size: 17));
81     btnNewButton_1.addActionListener(new ActionListener() {
82     ↗ public void actionPerformed(ActionEvent e) {
83         textField.setText("");
84         textField_1.setText("");
85         textField_2.setText("");
86     }
```

```

Main.java SimpleForm.java SwingAdder.java x
80
87 });
88 btnNewButton_1.setBounds( x: 203, y: 283, width: 147, height: 37);
89 contentPane.add(btnNewButton_1);
90 JButton btnNewButton_2 = new JButton( text: "-");
91 btnNewButton_2.setFont(new Font( name: "Tahoma",
92     Font.BOLD, size: 17)); btnNewButton_2.addActionListener(new ActionListener() {
93     public void actionPerformed(ActionEvent e) {
94         number1=Integer.parseInt(textField.getText());
95         number2=Integer.parseInt(textField_1.getText());
96         sub=number1-number2; textField_2.setText(sub+"");
97     }
98 });
99 btnNewButton_2.setBounds( x: 203, y: 191, width: 147, height: 37);
100 contentPane.add(btnNewButton_2);
101 JButton btnNewButton_3 = new JButton( text: "*");
102 btnNewButton_3.setFont(new Font( name: "Tahoma",
103     Font.BOLD, size: 17));
104 btnNewButton_3.addActionListener(new ActionListener() {
105     public void actionPerformed(ActionEvent e) {
106         number1=Integer.parseInt(textField.getText());
107         number2=Integer.parseInt(textField_1.getText());
108         mul=number1*number2; textField_2.setText(mul+"");
109     }
110 });
111 btnNewButton_3.setBounds( x: 15, y: 242, width: 152, height: 37);

```

```

© Main.java    © SimpleForm.java    © SwingAdder.java x
108             mod=number1*number2; textField_2.setText(mod+"");
109         }
110     });
111     btnNewButton_3.setBounds( x: 15, y: 242, width: 152, height: 37);
112     contentPane.add(btnNewButton_3);
113     JButton btnNewButton_4 = new JButton( text: "/" );
114     btnNewButton_4.setFont(new Font( name: "Tahoma", Font.BOLD, size: 17));
115     btnNewButton_4.addActionListener(new ActionListener() {
116     public void actionPerformed(ActionEvent e) {
117         number1=Integer.parseInt(textField.getText());
118         number2=Integer.parseInt(textField_1.getText());
119         div=(number1/number2); textField_2.setText(div+"");
120     }
121 });
122     btnNewButton_4.setBounds( x: 203, y: 242, width: 147, height: 37);
123     contentPane.add(btnNewButton_4);
124     JButton btnNewButton_5 = new JButton( text: "%" );
125     btnNewButton_5.setFont(new Font( name: "Tahoma", Font.BOLD, size: 17));
126     btnNewButton_5.addActionListener(new ActionListener() {
127     public void actionPerformed(ActionEvent e) {
128         number1=Integer.parseInt(textField.getText());
129         number2=Integer.parseInt(textField_1.getText());
130         mod=number1%number2; textField_2.setText(mod+"");
131     }
132 });
133

```

- **Add:**

A screenshot of a window titled "Laiba's Calculator". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. The interface is light gray. It contains three input fields: "First Integer" with the value "2", "Second integer" with the value "4", and "Result" with the value "6". Below the input fields are five buttons: a "+" button, a "-" button, a "\*" button, a "/" button, and a "CLEAR" button. The buttons are arranged in two columns: the first column has "+", "\*", and "CLEAR"; the second column has "-", "/", and "CLEAR".

- **Subtract:**

A screenshot of a window titled "Laiba's Calculator". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. The interface is light gray. It contains three input fields: "First Integer" with the value "8", "Second integer" with the value "4", and "Result" with the value "4". Below the input fields are five buttons: a "+" button, a "-" button, a "\*" button, a "/" button, and a "CLEAR" button. The buttons are arranged in two columns: the first column has "+", "\*", and "CLEAR"; the second column has "-", "/", and "CLEAR".

- **Multiply:**

The screenshot shows a window titled "Laiba's Calculator" with a light gray background. It contains three input fields: "First Integer" with the value 4, "Second integer" with the value 5, and "Result" with the value 20. Below the fields are five buttons: a "+" button, a "-" button, a "\*" button, a "/" button, and a "CLEAR" button. The "\*" button is highlighted with a blue border.

- **Divide:**

The screenshot shows the same "Laiba's Calculator" window. The "First Integer" field now contains 9, the "Second integer" field contains 3, and the "Result" field contains 3.0. The buttons are the same as in the previous screenshot, but the "\*" button is no longer highlighted.